

From: [Anderson, RobinM](#)
To: [Tzhone, Stephen](#)
Cc: [Poore, Christine](#); [Bartenfelder, David](#); [Berg, Marlene](#); [Crumbling, Deana](#)
Subject: RE: Arkwood summary for HQ; conclusion/positions concurrence requested
Date: Friday, September 18, 2015 1:36:33 PM

PTW is not a factor in determining whether action is warranted under CERCLA.

With that being said – provided that there are no releases at levels of concern or that are increasing and I understand that you will be studying colloidal transport – it appears from the information provided that the remedy is protective and does not warrant further action under CERCLA.

Thank you so much.

Robin M Anderson
OSRTI/ARD/SARDB
703-603-8747

From: Tzhone, Stephen
Sent: Friday, September 18, 2015 12:31 PM
To: Anderson, RobinM
Subject: RE: Arkwood summary for HQ; conclusion/positions concurrence requested

This information is helpful. I will share with the site team, mgmt, and RPMs with dioxin sites.

The previous thought here was that the principal threat waste analysis would be used to determine whether action would be warranted for the remaining soils with dioxin up to 16,750 ppt TEQs max that's located underneath the 6" cover with ICs.

If the correct interpretation is that the PTW analysis should not be used to make this determination (and instead the information highlighted in the last two paragraphs below be used), then that can be done.

Please confirm, thanks.

From: Anderson, RobinM
Sent: Friday, September 18, 2015 9:22 AM
To: Tzhone, Stephen
Subject: RE: Arkwood summary for HQ; conclusion/positions concurrence requested

Unless we have evidence that the selected remedy is not protective then it is and no action is warranted. This is akin to a 5 Year review evaluation.

Is the landfill leaking? Are the ICs in place and functioning?



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Have the landuse assumptions changed such that it might not be protective?

Do we have a VI pathway that is not protective?

Like the any 5 Year review and how we consider new regulation – is there something about a new regulation or policy that calls into question the protectiveness of the remedy. The levels for dioxin for cleanup have dropped –maybe since the ROD was signed. However – how does that impact whether the landfill is containing the waste? Do you have evidence that it is releasing contaminants above protective levels or are levels increasing? That would lead one to think that we might have a protectiveness concern.

In general, if we have capped the landfill and there is no evidence that it is a problem from a protectiveness standpoint we should not be reopening the remedy—unless someone (PRP, State, other) that wants to do something different at the site or allow a different land use. PTWs do not come into play.

If you are saying that there is evidence of leaking from the landfill and therefore the cap is not protective – then we explore other remedies and the PTW issue is then reopened.

The cap should stop the Dioxin and other relatively immobile organics unless there are mobilizing forces, even if there is a vertical water gradient so that the cap really isn't the only mechanism stopping the infiltration. Factors that result in the mobilization of Dioxin and other large relatively immobile organics include: –co-solvents, Dissolved Organic Carbon (DOC) (these increase with pH and also are also breakdown products from dissolved organic material (DOM)), and colloidal transport. DOCs present a significant factor in mobilization of organics and inorganics to an extent that may not have been anticipated.

So unless you have some evidence that the landfill is leaking what is the basis for saying that it is not protective? I would argue that you need that evidence or evidence that the ICs are not working or that there is a desire for a remedy change by the PRP or state maybe to allow a change in landuse if the state wants to get out of O&M in the future that could also result in an EPA decision to reopen the remedy.

From: Tzhone, Stephen

Sent: Friday, September 18, 2015 9:21 AM

To: Anderson, RobinM

Subject: RE: Arkwood summary for HQ; conclusion/positions concurrence requested

Maybe we can ask this a different way... what exactly is the trigger for action warranted for the remaining soils with dioxin up to 16,750 ppt TEQs max that's located underneath the 6" intact cover with ICs in place?

From: Anderson, RobinM

Sent: Friday, September 18, 2015 8:15 AM

To: Tzhone, Stephen

Subject: RE: Arkwood summary for HQ; conclusion/positions concurrence requested

The question of is action warranted is the first question. If the answer that is no - -then there is no discussion of PTW. PTW does not inform trigger for action.

From: Tzhone, Stephen

Sent: Thursday, September 17, 2015 5:18 PM

To: Anderson, RobinM

Subject: RE: Arkwood summary for HQ; conclusion/positions concurrence requested

That is the question we're trying to answer... is action warranted under CERCLA (for the remaining soils with dioxin up to 16,750 ppt TEQs max underneath the cover)?

The answered arrived by staff and mgmt here was no and the information provided in the June 12 email is a summary of the analysis and rationale that was done to arrive at that conclusion.

If that conclusion is correct, then foreseeably, there would be no or minimal remedial actions needed for the remaining soils with dioxin up to 16,750 ppt TEQs max underneath the cover (since the cover and the ICs are already in place).

From: Anderson, RobinM

Sent: Thursday, September 17, 2015 3:15 PM

To: Tzhone, Stephen

Subject: FW: Arkwood summary for HQ; conclusion/positions concurrence requested

Stephen – I have lost the thread. Is this the case of we took a remedy and now we are deciding if we need to go further?

The question must be == is action warranted under CERCLA. Only then do we do the PTW analysis.

From: Berg, Marlene

Sent: Thursday, September 17, 2015 4:07 PM

To: Anderson, RobinM

Subject: RE: Arkwood summary for HQ; conclusion/positions concurrence requested

Robin, Deana is handling the sampling issue.
Marlene

From: Anderson, RobinM

Sent: Thursday, September 17, 2015 2:38 PM

To: Berg, Marlene; Tzhone, Stephen; Poore, Christine; Bartenfelder, David; Huling, Scott

Cc: Sanchez, Carlos; Meyer, John

Subject: RE: Arkwood summary for HQ; conclusion/positions concurrence requested

What is the sampling issue?

From: Berg, Marlene

Sent: Wednesday, September 16, 2015 11:55 AM

To: Tzhone, Stephen; Poore, Christine; Anderson, RobinM; Bartenfelder, David; Huling, Scott

Cc: Sanchez, Carlos; Meyer, John

Subject: RE: Arkwood summary for HQ; conclusion/positions concurrence requested

Steve,

I will defer to Deana re sampling and Dave re ground water.

I only had one comment on item #5:

It is recommended that these areas be considered for receptor exposures that are specific to these locations, including a maintenance worker and adolescent/adult trespasser.

Are there other current/future land uses beyond the site boundary in addition to maintenance worker and adolescent/adult trespasser?

Marlene

From: Tzhone, Stephen

Sent: Tuesday, September 15, 2015 1:37 PM

To: Poore, Christine; Berg, Marlene; Anderson, RobinM; Bartenfelder, David; Huling, Scott

Cc: Sanchez, Carlos; Meyer, John

Subject: RE: Arkwood summary for HQ; conclusion/positions concurrence requested

Hi Christine, Marlene, Robin,

I just wanted to update that R6 will be moving forward with these gw and soil comments, unless we're advised otherwise by Sep 30.

The gw path forward will follow the strategy outlined in the attached 'draft_Arkwood GW Path Forward Sep 2015.docx'. The gw comments to be sent to the PRPs are in the attached 'gw_EPA draft final comments.docx'.

The soil path forward will follow the strategy outlined in the previous June 12 email below. The soil comments to be sent to the PRPs are in the attached 'soil_EPA draft final comments.docx'.

Please let me know if any comments, thanks.

Thanks,

Stephen L. Tzhone

Superfund Remedial Project Manager

214.665.8409

tzhone.stephen@epa.gov

From: Tzhone, Stephen

Sent: Friday, June 12, 2015 9:54 AM

To: Poore, Christine; Berg, Marlene; Anderson, RobinM

Cc: Sanchez, Carlos; Meyer, John

Subject: Arkwood summary for HQ; conclusion/positions concurrence requested

Hi Christine, Marlene, Robin,

I've been asked to summarize the R6 position on Arkwood and to obtain your concurrence as OSRTI representatives. Currently, we are in a dioxin re-evaluation for this former 18-acre wood treater. The 1990 ROD implemented an industrial soil remediation goal for dioxin at 20,000 ppt TEQs, via excavation, incineration, and 6" cover.

As part of the dioxin re-evaluation, we wanted to answer this main question:

Main Question: Are the remaining site soils with dioxin principal threat wastes?

Current R6 conclusion: No, the remaining site soils with dioxin are not principal threat waste.

Rationale: The 1991 principal threat waste guidance defines PTWs as "those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur". Thus, our conclusion was based on:

1) Are the remaining soils with dioxin (up to 16,750 ppt TEQs max underneath the cover) highly toxic?

[\[see my question previously\]](#)

Current R6 position: No, remaining soils with dioxin up to 16,750 ppt TEQs max are not highly toxic. Rationale: The 1991 PTW guidance calls for using 10-3 as a treatment marker. Using the current Tier 3 RSL value (based on Cal EPA) of 22 ppt TEQs = 10-6, we equated that to 22,000 ppt TEQs = 10-3. Since the remaining site soil levels with dioxin are under 10-3, it would not be PTW based on the 10-3 marker. We do note that although the 1991 guidance did not mention the use of hazard quotients or recommend treatment markers based on hazard quotients, consideration on the subject would be helpful in a future update to the guidance due to the existence of the Tier 1 value for non-cancer and that current national dioxin PRGs are based on non-cancer.

2) Are the remaining soils with dioxin highly mobile?

Current R6 position: No, the remaining soils with dioxin at the site are not highly mobile.

Rationale: Dioxin readily binds to soil and has very low water solubility. At the site, the remaining soils with dioxin up to 16,750 ppt TEQs max are underneath the 6" cover, as required by the 1990 ROD remedy. As an extra precaution, we are checking for dioxin

colloidal transport in gw.

3) Can remaining soils with dioxin be reliably contained?

Current R6 position: Yes, remaining soils with dioxin can be reliably contained. Rationale: We utilized incremental sampling and sampled the cover, along with other areas that are uncovered. For the cover, the validated PRP incremental sample (for all sampling units) is 610 ppt TEQs max. The EPA co-located lab replicate (done on two of the sampling units) is 288 ppt TEQs and 333 ppt TEQs. Thus, sampling evidence shows that the integrity of the cover has not been compromised since the original remedy was implemented over two decades ago.

4) Would the remaining soils with dioxin present a significant risk to human health or the environment should exposure occur?

Current R6 position: Since the completion of the 1990 ROD remedy, industrial worker exposure has not occurred and is not occurring. Thus, we have answers for two exposure scenarios:

For the actual past, current, and likely future maintenance worker exposure: No, the remaining soils with dioxin would not present a significant risk should exposure occur. Rationale: The maintenance worker exposure is set at 12,100 ppt TEQs. If remedy components were intact, there would be no exposure. If remedy components were not intact, the maintenance worker can potentially be exposed to remaining soils with dioxin up to 16,750 ppt TEQs max underneath the cover. The risk difference between 12,100 ppt TEQs and 16,750 ppt TEQs is not significant (if significance is defined by being more than an order of magnitude).

For a theoretical future industrial worker exposure: Yes, the remaining soils with dioxin could present a significant risk if exposure occurs. Rationale: The industrial worker exposure is set at 730 ppt TEQs. If remedy components were intact, there would be no exposure. If remedy components were not intact, the industrial worker can potentially be exposed to the remaining soils with dioxin up to 16,750 ppt TEQs max underneath the cover. The risk difference between 730 ppt TEQs and 16,750 ppt TEQs could be considered significant (if significance is defined by being more than an order of magnitude); however, sample results show that all remedy components remain in place and intact, including ICs to ensure exposure is controlled.

Please respond with any comments and your concurrence status on our conclusion/positions. Attached fyi for reference: draft regulator soil and gw comments, CSM figures, and PRP sampling reports.

Thanks,

Stephen L. Tzhone

Superfund Remedial Project Manager

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Site Team:

Stephen Tzhone: R6 RPM

Jon Rauscher: R6 site risk assessor

Ghassan Khoury: R6 dioxin coordinator

Deana Crumbling: HQ soil sampling support

Scott Huling: HQ gw support

Kent Becher: USGS gw support

EA Engineering: field contractor support

Mgmt:

Chris Villarreal: R6 risk assessment section

Carlos Sanchez: R6 AR/TX remedial section

John Meyer: R6 remedial branch
